

CLAIM AMENDMENTS

1. (Currently Amended) A composite comprising:
a layer of a dielectric material having a thickness, as a matrix of the composite;
and
superparamagnetic nano-magnetic-particles having a maximum dimension in a range from 5.2 nm to 5.8 nm and dispersed throughout the matrix, wherein the thickness of the dielectric material is at least one thousand times the maximum dimension of the superparamagnetic nano-particles.
2. (Currently Amended) The composite according to claim 1, wherein the superparamagnetic nano-magnetic-particles are non-spherical.
3. (Currently Amended) The composite according to claim 2, including spherical superparamagnetic nano-magnetic-particles in addition to the non-spherical superparamagnetic nano-magnetic-particles.
4. (Currently Amended) The composite according to claim 1, wherein the superparamagnetic nano-magnetic-particles are spherical.
5. (Previously Amended) The composite according to claim 1, wherein the matrix is selected from the group consisting of silica, alumina, and hydrosilsesquioxane.
6. (Previously Amended) The composite according to claim 1, wherein the matrix is selected from the group consisting of polyimide, polymethyl methacrylate, and methyl silsesquioxane.

Claim 7 (Cancelled).

8. (Currently Amended) The composite according to claim 1, including diamagnetic nano-magnetic-particles in addition to the superparamagnetic nano-particles.
9. (Currently Amended) The composite according to claim 8, wherein the diamagnetic nano-particles include indium.

Claim 10 (Cancelled).

11. (Currently Amended) The composite according to claim 1, wherein the superparamagnetic nano-magnetic-particles are selected from the group consisting of γ -Fe₂O₃, chromium oxide, europium oxide, NiZn-ferrite, MnZn-ferrite, and yttrium-iron garnet.

Claim 12. (Cancelled).

13. (Currently Amended) A semiconductor device comprising:
a semiconductor substrate; and
an insulator disposed on the semiconductor substrate and comprising a composite including a layer of a dielectric material having a thickness, as a matrix of the insulator, and

superparamagnetic nano-magnetic-particles having a maximum dimension in a range from 5.2 nm to 5.8 nm and dispersed throughout the matrix, wherein the thickness of the dielectric material is at least one thousand times the maximum dimension of the superparamagnetic nano-particles.

14. (Currently Amended) The semiconductor device according to claim 13, wherein the superparamagnetic nano-magnetic-particles are non-spherical.

15. The semiconductor device according to claim 13, wherein the superparamagnetic nano-magnetic-particles are spherical.

Claim 16 (Cancelled).

17. (Currently Amended) The semiconductor device according to claim 15, wherein including diamagnetic nano-magnetic-particles are added to the superparamagnetic nano-particles.

18. (Currently Amended) An optical device comprising:
a layer of a transparent dielectric material having a thickness, as a matrix; and
superparamagnetic nano-magnetic-particles having a maximum dimension of 5.2 nm to 5.8 nm and dispersed within throughout the matrix, wherein the thickness of the

matrix is at least one thousand times the maximum dimension of the superparamagnetic nano-particles.

19. (Currently Amended) The optical device according to claim 18, wherein the superparamagnetic nano-magnetic-particles are non-spherical.

20. (Currently Amended) The optical device according to claim 18, wherein the superparamagnetic nano-magnetic-particles are spherical.

Claims 21 and 22 (Cancelled).